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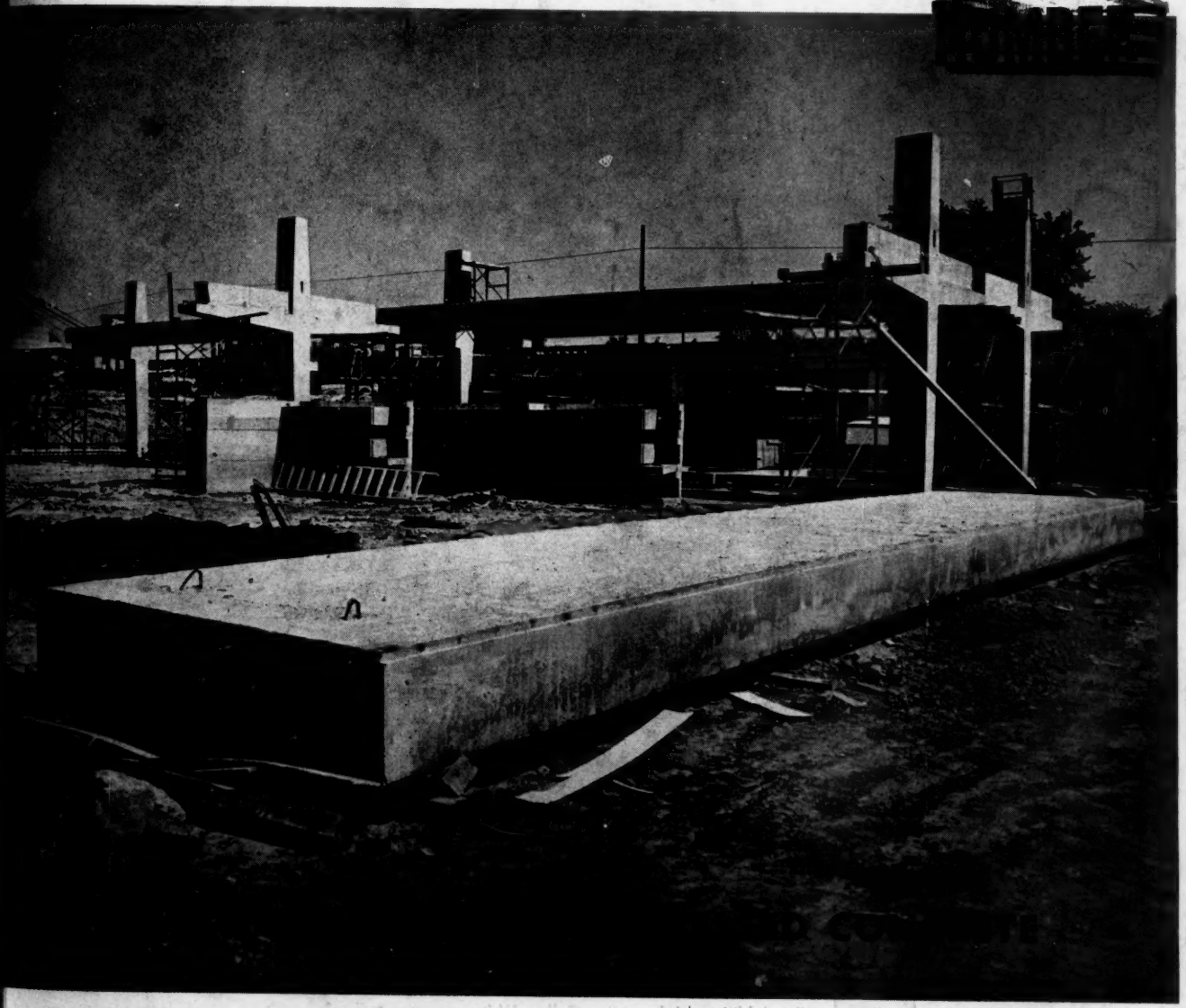

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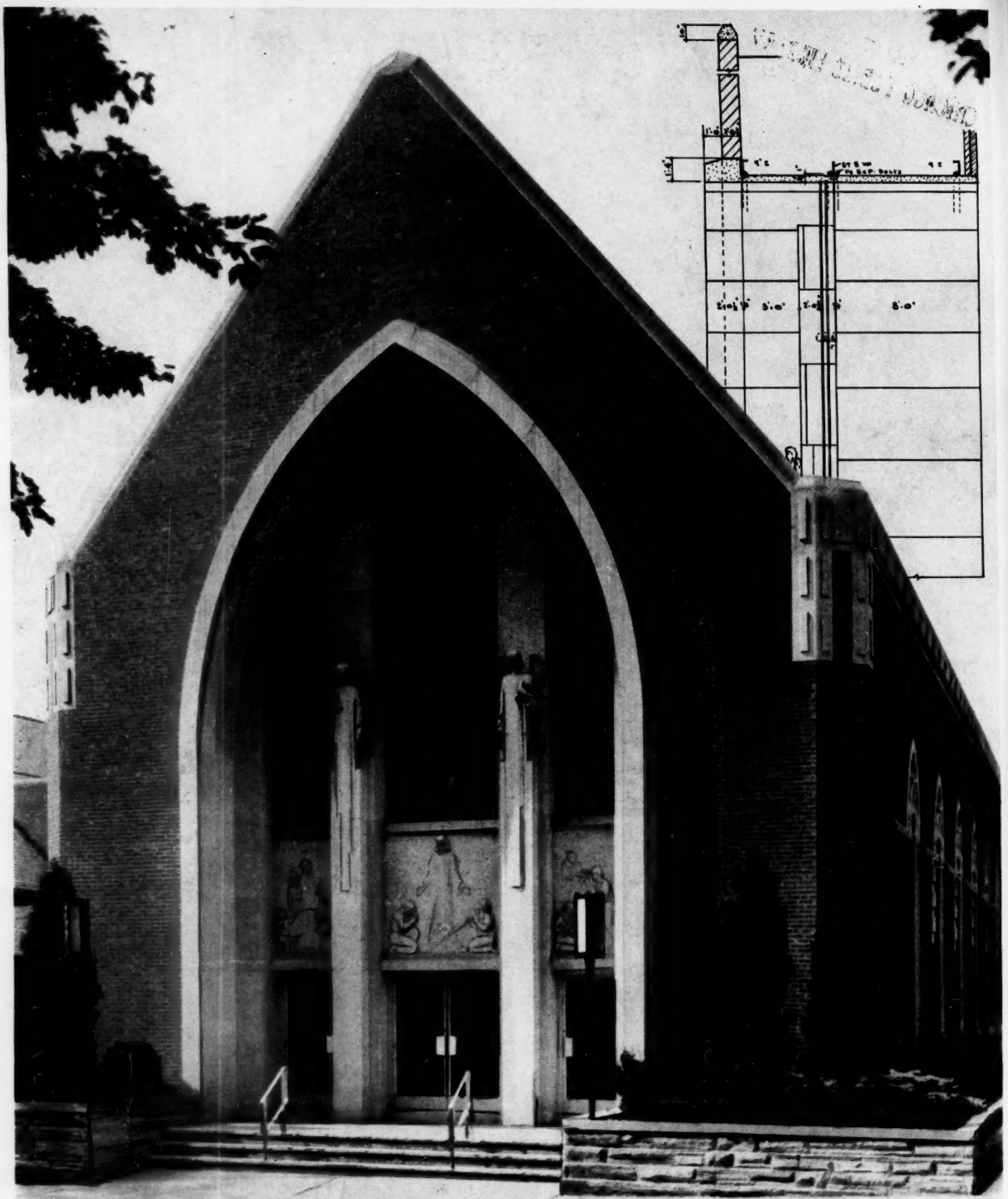

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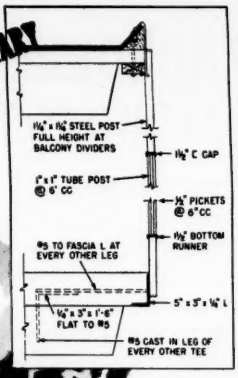
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Architect: Leon Brin, A.I.A., Denver; General Contractor: Norman Construction Co., Denver; Prestressed Concrete Fabricator: Prestressed Concrete of Colorado, Denver.

Architect Leon Brin cites 'acoustic comfort' as a 'sound' reason why prestressed concrete was used in this Denver apartment

The only thing we've added to Mr. Brin's remarks, quoted below, are italics.

"My apartment owners know their tenants are demanding two features: generous balconies to accommodate their outdoor living requirements, and a soundproof structure.

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"In addition, the deck becomes the scaffolding for the brick masons to work on each floor. The steel balcony railing is readily attached to the balcony angle iron fascia. (See detail above). With masonry bearing walls and the prestressed concrete deck *the structure is fireproof with no additional treatment required.*

"The exposed tee sections provide an interesting beam effect within each room as well as from the exterior. Floor to floor heights were actually reduced 8 to 10 inches by using 7 feet 4 inches to the bottom of the tee and 8 feet to the deck. *Weather had no effect upon the erection or quality of the deck which was placed quickly and directly.*

"This construction has worked out so satisfactorily that work is about to begin on a similar apartment building containing 36 units."

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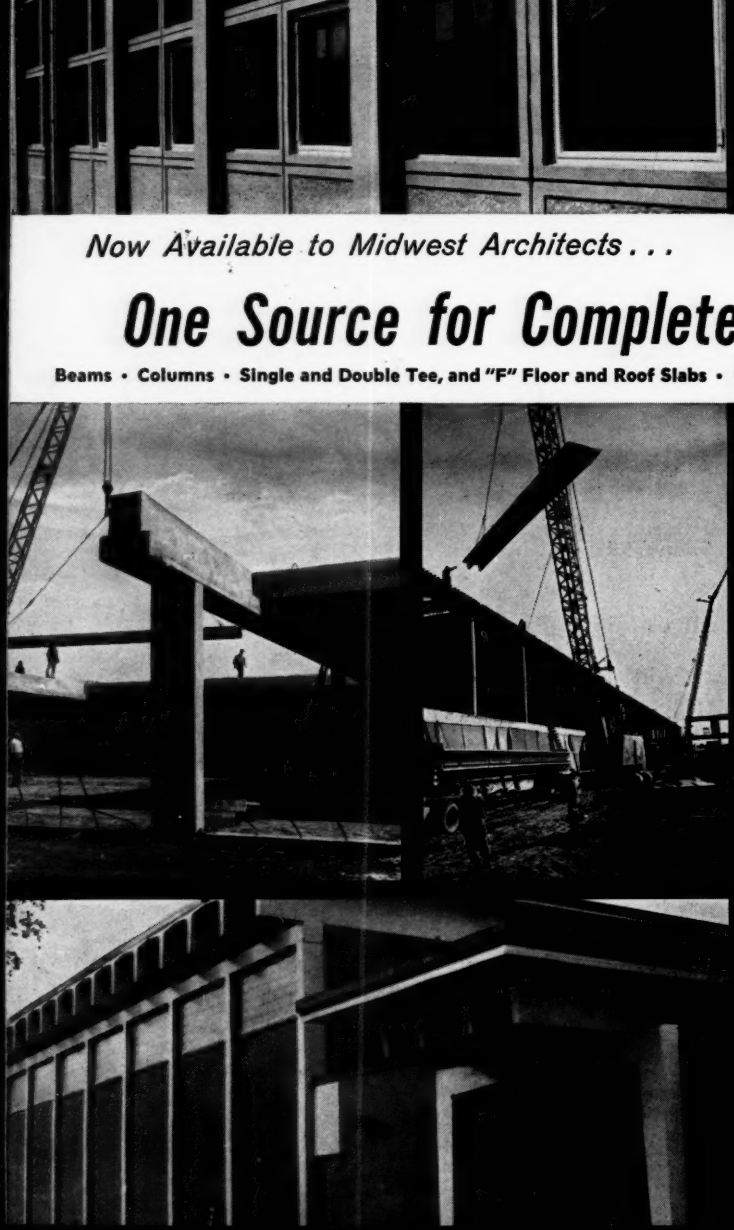

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COVER PHOTO: Prestressed concrete elements are being used in the construction of Evergreen Park Plaza Shopping Center Addition, designed by Skidmore, Owings & Merrill, Architects. Photo provided by Material Service Company.

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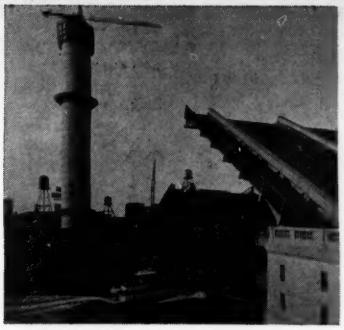

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Contents

Meetings	6	
Another Look at Prestressed Concrete	8	
Supervision is an Art	8	
A Direct Solution to Structural Problems	9	*Kenneth C. Naslund Engineers Collaborative*
Looking Ahead	10	*R. Rea Esgar, AIA, President Chicago Chapter*
Prestressed Concrete Serves a Variety of Functions	10	*Paul Rosenthal, President Illinois Prestressed Concrete Association*
Fire Resistance in Prestressed Concrete	13	
Prestressed Concrete in Chicago – and ASCE	14	
Central Illinois Comment	16	*Edward L. Verkler, AIA*
Membership	20	

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TO THE POINT

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MEETINGS

Architecture And The Humanities in November

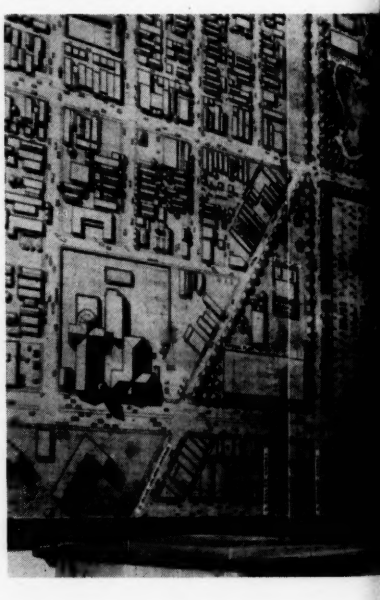
John E. Burchard, Dean of the School of Humanities and Social Science, Massachusetts Institute of Technology, will discuss the relationship of Architecture and the Humanities, and the part public education plays in Architecture, at the November meeting of the Chicago Chapter, AIA, November 14.

The meeting, to be held at the Arts Club, will open with cocktails at 5:30 pm, with dinner at 6:30 pm.

Chicago U of I Master Plan Presented

Mr. Walter A. Netsch, Jr., AIA, Chief of Design at Skidmore, Owings & Merrill, presented the master plan of the University of Illinois, Chicago campus with a special analysis

Below: Walter Netsch, Jr. AIA, chief of design and a partner in Skidmore, Owings and Merrill, explains the master site plan of the new University of Illinois in Chicago to Mr. Norman Parker, vice-president of the University and new head of the University in Chicago, and R. Rea Esgar, AIA, president, Chicago Chapter. The Chapter meeting was held in the Builders' Club.



of the many design criteria at the Chicago Chapter, AIA's first meeting of the fall season held last month.

A very short construction schedule for the first stage is a major problem since 9000 students will be required to use the University facilities by the Fall of 1964, with the ultimate state to be completed in 1969, when 23,000 students are expected to enroll.

The high point of the presentation was the showing of colored slides of the master plan and the new urban University environment. The meeting was attended by more than 100 chapter members and guests.

Paint Engineering Institute

Architects, specification writers, as well as painting contractors will take part in The University of Wisconsin, Extension Division Paint Institute to be held on November 30 and December 1. Emphasis will be placed on exterior finishes, and reasons for paint failure and their relation to other phases of construction. Future programs for paint specifiers will be considered. For further information contact John Peterson, Institute Coordinator at the University.

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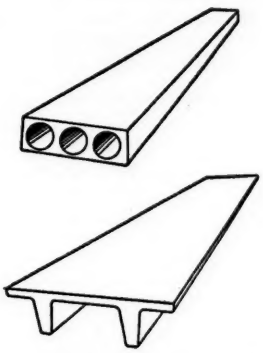

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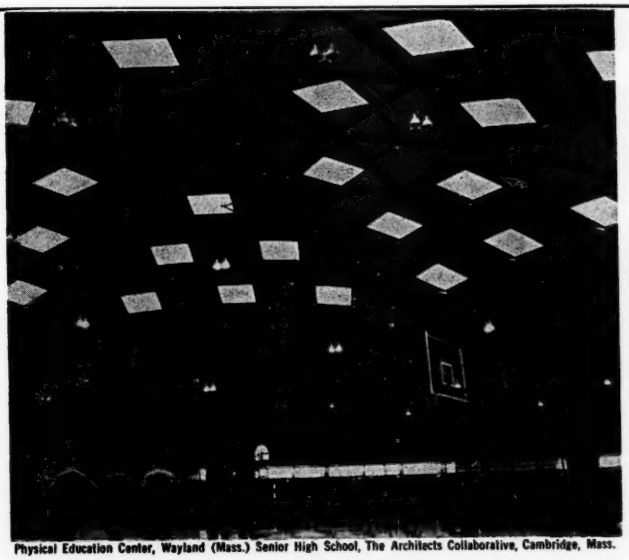

Physical Education Center, Wayland (Mass.) Senior High School, The Architects Collaborative, Cambridge, Mass.

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Editorial

Another Look at Prestressed Concrete

■ The continuing and ever growing interest of architects and engineers in prestressed concrete justifies devoting this issue of "Inland Architect" to a single building material. This issue re-examines the material and its recent applications and attempts to do this objectively.

We are concerned about the current controversy about the use of prestressed concrete in the City of Chicago and are watching developments with interest, yet we do not feel obliged to involve ourselves in this controversy. Mr. George L. Ramsey, AIA, Commissioner, Department of Buildings, City of Chicago, declined for the present to submit another statement to the readers of "Inland Architect" in regard to the position of the Building Department because of pending litigation (at the time of this writing). We fully understand and respect this decision by Commissioner Ramsey. We hope that he will again contribute to "Inland Architect" in the future.

Our new look at prestressed concrete is meant to be informative. Design, manufacture, testing and application of prestressed members are the subjects submitted for review by our readers. No evaluating, editorializing, endorsing or rejecting is implied on the part of "Inland Architect" or the Chicago Chapter, AIA. □

Supervision Is An Art

■ The art of developing excellence in architectural supervision requires considerable skill on a broad scale of subjects. The coordination and direction of this activity is specifically different from the architectural phases which precede it.

The superior contemporary architect-engineer superintendent has emerged from yesterday's blue shirt, into an all purpose representative. He must stand confidently on his project site under a hard hat, and also be capable of sitting with ease in a client's office with a business hat in his lap. This competence required a theoretical education in what being an architect means, full knowledge of the client's needs plus a thorough understanding of his project's design, and a hard knowledge of the business of building.

This art of architectural supervision has not been confined to lengthy periods without change. The public demands that the luxuries in yesterday's buildings become today's necessities. Tomorrow's complexities viewed in projection may seem limitless. Further, in the fact of rising costs the proper spirit of construction demands a shedding of all that is superfluous, in an environment of boldness without risk.

A current program of interest in the field of building construction supervision is the seminar entitled "Supervision of Construction of Buildings", sponsored jointly by the Educational Committee of the Chicago Chapter, American Institue of Architects, and the Builders Association of Chicago, with assistance by "Building Construction Magazine". The planning committee for this seminar was under the chairmanship of Mr. Earl Benedict, AIA Senior Editor, "Building Construction Magazine", Mr. Walter Sobel, AIA Mr. Martin David Dubin, AIA, in association with Mr. Wayne Stanton, Executive Secretary of the Builders Association.

An interesting coverage of construction supervision, both from the architect's and contractor's points of view has been, and continues to be presented at the Saturday Seminars:

Date: September 30, 1961
Subject: "Supervision of Construction of Buildings"
Speakers: Mr. Paul Heimlich, Senior Superintendent, Skidmore, Owings & Merrill, Architects & Engineers
Mr. Frank Kornacher, Structural Engineer
Mr. A. L. Spencer, Executive Vice President
S. N. Nielsen Construction Company

Date: October 7, 1961
Subject: "Shopping Centers and Industrial Buildings"
Speakers: Mr. William McArthur, Partner
Loebl, Schlossmann & Bennett, Architects & Engineers
Mr. J. Bernard Blake, Vice President
Inland Construction Company

Date: October 14, 1961
Subject: "Hospitals, Schools and Institutional Buildings"
Speakers: Mr. John Fugard Jr., Partner
Fugard, Burt, Wilkinson & Orth, Architects & Engineers
Mr. William Olson, Vice President
William E. Schweitzer Construction Company

Date: October 21, 1961
Subject: "High Rise Office Buildings, Apartments and Large Complexes"
Speakers: Mr. Edward W. Olsen, Project Manager
Shaw, Metz & Associates, Architects & Engineers
Mr. James P. McHugh, Vice President & Secretary
James McHugh Construction Company

The interchange of ideas between architects and contractors directed toward improving understanding of common problems is an efficient method of improving construction relations. In the final analysis, it is during the supervision phase of an architectural commission that the necessary construction principal, the owner, either gets or doesn't get that which is intended by the contract plans and specifications.

Prestressed Concrete —

A Direct Solution To Structural Problems

by Kenneth C. Naslund, Engineers Collaborative

■ We are all probably aware of the impact prestressed concrete has had upon the construction industry throughout the world. Those who have been fortunate enough to travel abroad have undoubtedly seen many fine structures, ranging from bridges to buildings, which have incorporated the principle of prestressing in one form or another. The European and Latin American countries have many examples which, for lack of a better term, may be considered "daring". On second thought we should perhaps substitute the words "direct solutions of the problems involved", for the word "daring". This better describes the structures referred to because the structural design of these structures is scrupulously worked out and is consistent with the behavior of the concrete and the prestressing steel at their working loads.

It would seem that prestressed concrete has been a rather recent development and is mistakenly thought by some to be a "brand spanking new technique." To maintain these thoughts would be an injustice to those pioneers who daringly conceived the principles of prestressed concrete, and performed the early experiments which contributed greatly to producing the design principles used freely by most engineers today.

Historically, prestressed concrete design principles date back to 1886 in the United States and 1888 in Germany. However, the practical application of these was prevented because of the relatively low strength of the steel used. It was not until 1928 that Freyssinet started to use high tensile strength wire for post-tensioning members. These wires allowed him to accomplish what his predecessors had not been able to; a relatively small loss of prestress force due to the shrinkage and creep of the concrete. From this point on the use of prestressed concrete in Europe is a matter of record. The bridges by Leonhardt adequately demonstrate the potential for form in Architecture.

Kenneth C. Naslund passed the state board examination as an Architect in Illinois during his last semester as an undergraduate student at the University of Illinois. He passed the examination as a Structural Engineer while employed at Skidmore, Owings and Merrill.

He has worked for Holabird & Root and A. J. Boynton, as well as Skidmore, Owings and Merrill. At the latter firm he was a Structural Designer and rose to the post of Chief Structural Engineer.

Presently, he is a senior partner in the firm known as The Engineers Collaborative which provides numerous engineering services of an advanced nature to architects, engineers, government and Private agencies and a variety of other clients.

The use of prestressing principles, (practically applied), in the United States, oddly enough, applies to neither bridges nor buildings. It was the Preload Company, starting in 1935, with its patented wire winding machines that constructed hundreds of prestressed concrete storage tanks before any prestressed bridge or building members were built.

Bridge Beams First

Bridge beams were among the first prestressed concrete members to be produced in the United States. The first pretensioned bridge being erected in December of 1951 near Hershey, Pennsylvania. It employed rectangular beams set side by side for a width of 22 feet and only spanned 24 feet. From this time on the prestressed concrete industry has grown to the point where it presently employs close to 10,000 people in the prestressing plants; uses close to 2,000,000 cubic yards of concrete and 150,000 tons of prestressing wire and steel; and sells approximately a quarter of a billion dollars worth of product a year!

It can safely be said that prestressed concrete will soon rank with structural steel and poured concrete in usage.

Today, many architects and engineers are becoming involved with prestressed concrete for the first time. There are many reasons why they are becoming involved and among these are economic considerations and/or better performance characteristics than other materials for given situations. For those using the material for the first time it is like learning a whole new vocabulary. The shapes and span lengths available are numerous and require a great deal of study prior to intelligent use of a particular member. The discipline it imposes on architectural design and mechanical systems is much more severe than other material if economy is to be considered. On the other hand it can perform tasks that other materials are incapable of when it comes to architectural expression or sheer performance requirements.

The use of precast prestressed concrete today requires that the designer familarize himself with the production techniques of the material, its actual fabrication, the erection procedures used and the design of details consistent with these other factors. Periodic visits to prestressing plants and jobs under construction will do more towards educating a designer on how best to use the material effectively than all the verbiage to be found in magazines (that of the writer included). It has design requirements which are vastly different from

other materials and foremost among these are the joint details.

Important Details

The detailing of precast concrete, prestressed or not, requires a great deal of attention to different loading conditions and the limitations for the erection of members.

The most important concept to acquire is simply that, while precast prestressed members are concrete they are not as plastic as poured concrete. They require different details from poured concrete and no attempt should be made to make the building appear as though it were cast in place. Now, this applies to only those structures which are wholly precast. We are soon to be exposed to uses of prestressed concrete where we will have to create new expressions to match the material usage and construction techniques employed.

Within the next few months we will see prestressed concrete members used on multi-story buildings wherein the members will be made so as to create a structure which behaves as if it were constructed monolithically. The post-tensioning of grouted joints; the use of welded and spliced bars in connection with composite concrete poured in place; and many other techniques will serve to advance the use of prestressed concrete even more than most people realize.

These few words on prestressed concrete can only serve as an introduction to the subject. Many interesting and eloquent articles do more justice to the potential of the material. It is hoped that the readers' curiosity has been aroused and if this is the case the purpose of these few words has been achieved. □

Looking Ahead — A Chapter Officer Comments

By R. Rea Esgar, AIA, President, Chicago Chapter

■ The new forms and uses of combinations of concrete and steel, the long spans, the curved shapes, the high stresses, the prestressing, post tensioning, the chemical stressing and the precasting, all descended on us so suddenly that we have been hard put to keep up with this fast developing technique and it may be beneficial to review our basic position in matters of this nature.

We are examined and registered, as architects, to protect the public, whom we serve, in matters of health and safety. Our responsibility goes much further into problems of area planning and esthetics, and without a free flow of ideas among ourselves and between our profession and the many specialists and experts connected with it, it is difficult to imagine how our responsibilities can be properly discharged. We are dedicated to this interchange of ideas and information.

The vast and exciting areas being opened to us by new applications of engineering principal and material development offer such a wide play for the imagination that should we be "carried away" by our enthusiasm some just might possibly slight our original charge of public health and safety. This must not be allowed to happen.

We must use the new, and the new combinations of the old with wisdom and understanding. When all the necessary information is available on a new technique or material we can readily agree on its practicability and our only disagreements will be in appropriateness and esthetic choice. Until then we must insist on research both in the laboratory and in the field so that we may become well equipped with reliable information and data for the proper design and use of any new product or technique, again, to the benefit of our basic client, the public. □

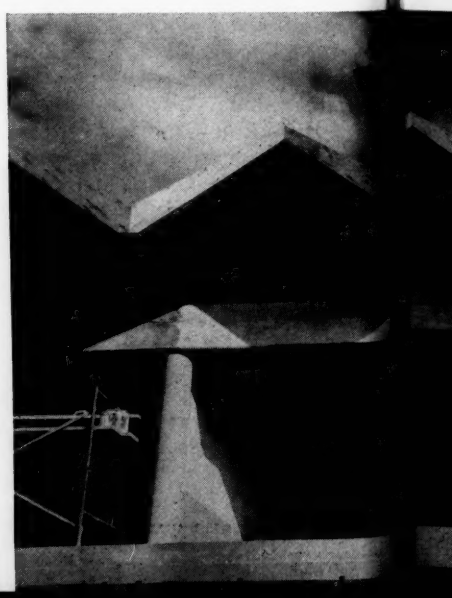
Prestressed Concrete

By Paul Rosenthal, President, Illinois Prestressed Concrete Associa

■ The Prestressed Concrete Industry in the United States is one of the fastest growing in the construction field. Prestressed concrete made its debut on this side of the Atlantic in 1949. It was first used in the construction of the Walnut Lane Bridge in Philadelphia. Initial test results of prestressed concrete were so spectacular that it soon was used in warehouses, shopping centers, piers, schools, stadiums, and in many other applications. So great was the demand for this new construction material that, in ten years, prestressing facilities grew from zero to over 300 casting plants.

As a result of this phenomenal growth, the Prestressed Concrete Institute was formed. It is an association of producers, engineers, and representatives of allied industries dedicated to the improvement of prestressed concrete design and construction standards. The Illinois Prestressed Concrete Association is an affiliate of this national organization, sharing our knowledge and experience with member firms and associations across the country.

Member firms of the IPCA have perhaps the most extensive casting facilities in the country for a great variety of prestressed and precast products. Bridge



nctional Variety

beams, floor and roof slabs, columns, building beams, stadiums, piling, etc., are available in this area.

In the past five years, a substantial volume of work has been produced and erected, including most of the bridges of the Illinois Tollway, South Route Expressway, numerous schools, warehouses, shopping centers and industrial buildings.

As an infant industry, prestressed concrete has had to compete with more conventional materials of construction and prove itself superior in given applications. Therefore, the producers have had to carry on extensive research and development programs to prove the material to the public and to enlarge its fields of application. PCI, nationally, has conducted an extensive fire testing program, as well as durability and structural testing of various types of components. The Illinois Association, on its own and with the national institute, continues with this type of research.

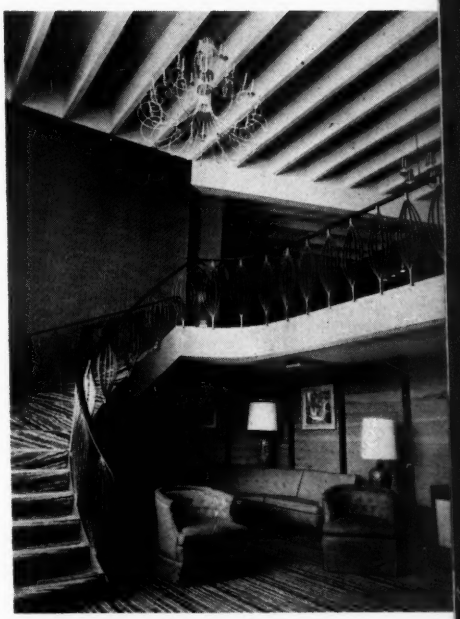
Basically, the prestressed and precast industry is based on the economics of prefabrication. All of the producers came into this industry with the knowledge that, ultimately, factory production of building assemblies was inevitable. The efficiency of

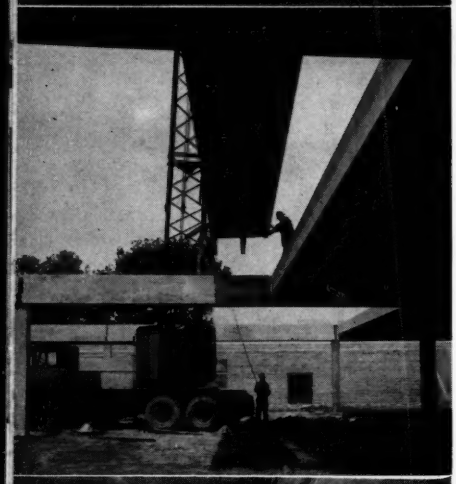
United Air Lines Executive Office building—Architects, Skidmore, Owings and Merrill—Contractor, Gust K. Newberg Construction Co. Column spacing is 60′ x 66′. Building contains 332,640 sq. ft. of continuous two-way, waffle-type slabs 2½′ thick, post tensioned. Inset shows Ryerson tendon and anchorage assemblies during post tensioning operation. Photo from Ryerson.

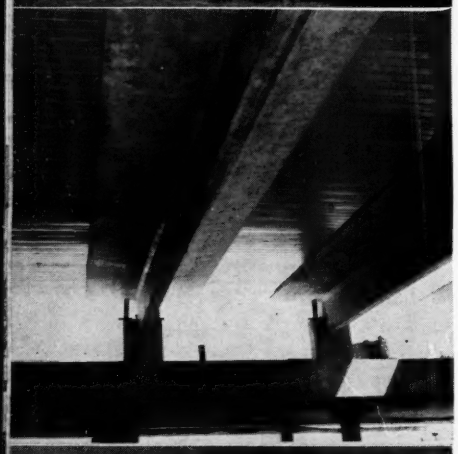
The Dorchester Club in Dolton, Illinois, features exposed prestressed "F" section slabs throughout the interior. Prestressed beams are also used extensively in the Club which was designed by Fridstein & Fitch, architect, and built by Henning-Johnson & Co. contractors. Photo from Crest Concrete.

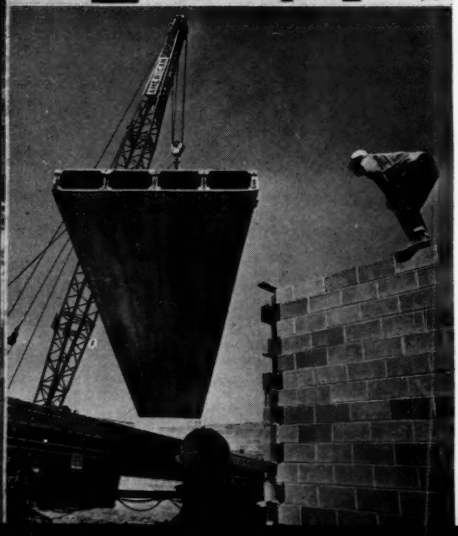
At lower right a new concept in roof design, a folded plate effect at the Womens' residence hall at Quincy College. Frank Horn & Associates, architects, Holthaus Bros. contractors. Photo from Midwest Prestressed Concrete Co.

At lower left, folded plate made with 48′-long prestressed panels at Our Lady of the Snows School in Chicago. Kefer & Cronin, Architects, Schillmoeller & Krofl Co. Inc. Contractors. Photo from Material Service Co.









mechanized assembly line techniques, as opposed to the relatively inefficient field labor, demands this direction. Specifically, prestressed concrete also gives considerable savings in steel and concrete to carry a given load for a given span, as compared to ordinary reinforced construction.

Other economic advantages of the material are the speed in which the structure is erected with precast components; practicability of casting in all weather, giving a smoother, faster construction schedule; and the insurance savings for most structures, as compared to the use of non-fireproof materials.

At top—Bryant Junior High School in Elmhurst, an architectural award winning building designed by Architects Cone and Dornbusch has more than half a dozen different structural elements of prestressed concrete, including 36" Tee slabs with 90' spans. Contractors were Crest Concrete Systems Inc. and M. A. Lombard Construction Co. Crest Concrete photo.

Architects Shayman and Salk specified 20" "F" slabs at the Shoppers' Warehouse in Villa Park, Ill. Beams are also prestressed. There is a two-hour Underwriters' label on all prestressed elements. Crest Concrete photo.

This is a prestressed Lin Tee 8' wide, 50' long and placed 16' on centers in the WGN Studio Building in Chicago. Graham Anderson Probst and White, architects, Gerhardt F. Meyne Co. contractor. Material Service photo.

At lower left, workmen are placing an 8' x 12" by 52' prestressed Dynacore unit in the Glendale Shopping Center, Glen Ellyn, Illinois. J. R. Hillman is the architect, H. A. Reskin, Inc. is contractor. Materials Service photo.

As with most manufactured materials, prestressed and precast concrete becomes lower in unit cost as the particular job gets larger, or, in other words, the repetitive casting of similar members is most economical. For the average job, transportation up to 200 miles is economically feasible.

In brief, the labor and material savings usually more than offset the transporting and erecting of prefabricated building products.

Prestressed concrete producers have considerable investments in plant facilities. They are forced to keep highly qualified personnel and quality control staffs. All IPCA members have their own engineering staffs and/or outside consulting engineers designing specific prestressed members and supervising the production. This is a qualification for membership in the IPCA, and we have recently instituted a general plant standard specification and inspection service supervised by independent firms.

Prestressed concrete, in itself, has a built-in quality control. Should the prestressed member be released before its design strength is attained, the member will either camber too much, or not enough.

The economics of the industry require the maximum possible use of casting facilities and this generally means daily casting on each prestressing bed. To attain this, high quality concrete plus steam curing must be used to attain the minimum 3500 pound release strength required in 12 to 16 hours. Therefore, it is in the self interest of the producer to have the highest possible quality of materials and workmanship in order to maintain his casting cycle.

This points up the other big advantage of factory produced products. Quality control is much simpler to achieve in a small, compact area where inspection is facilitated and the workmen are thoroughly trained in their specialized jobs.

All prestress plants have their own concrete laboratories for daily cylinder tests before release of the prestress force, as well as for constant check of concrete aggregates and mixes.

As the field of precasting expands, the next development will be into the comprehensive structure, such as has been the trend in Europe for the last 15 years. This is not to imply "package buildings", but rather the facilities to produce an infinite variety of shapes, sizes and types of units that will give the architect more, rather than less, flexibility in choosing his materials. □

Fire Resistance of Prestressed Concrete

■ All building materials, even refractories, will eventually succumb to fire if the exposure is sufficiently severe or lengthy. Since an early failure of a supporting member such as a column or beam might endanger the lives of the building occupants or fire fighters, the chief concern of those who establish fire safety codes is the time interval over which a member or structure will safely perform its design function. Therefore, building components are given fire resistance ratings that are specified in hours as established by the standard American Society of Testing Materials fire tests.

The requirements to be met by a fire safe member are established by the ASTM Standard E119-58 which is entitled "Standard Methods of Fire Tests of Building Construction and Materials." The scope of this standard is set out as follows:

"(a) These methods of conducting fire tests are applicable to assemblies of masonry units and to composite assemblies of structural materials for buildings, including bearing and other walls and partitions, columns, girders, beams, slabs and composite slab and beam assemblies of floors and roofs. They are also applicable to other assemblies and structural units that constitute permanent integral parts of a finished building.

"(b) It is the intent that classifications, which are designated by hours as 1 hr., 2 hr., etc. shall register performances during the period of exposure and shall not be construed as having determined suitability for use after fire exposure."

The standards state that the conduct of fire tests of materials and construction shall be controlled by the time-temperature curve shown in Fig. 1.

Under the heading "Tests of Floors and Roofs," the Conditions of Acceptance are listed as follows:

"(a) The construction shall have sustained the superimposed load equal to the design load during the fire endurance test without passage of flame or gases hot enough to ignite cotton waste, for a period equal to that for which classification is desired.

"(b) Transmission of heat through the construction during the fire endurance test shall not have been such as to raise the temperature on its unexposed surface more than 250°F. (139°) above its initial temperature."

Prestressed Concrete Institute is now conducting a fire test program through its Committee on Fire Resistance Ratings. Besides the tests already run, five more tests are planned for the near future. In addition, several tests by private concerns are also scheduled for this year. The committee intends that each of the Prestressed Concrete Institute-sponsored tests will earn a two-hour rating, in which case nearly all pretensioned stemmed units will qualify for Underwriters' Laboratories label service when required.

Nine major formal tests have been conducted to date by the PCI, the Portland Cement Association and by manufacturers of prestressed units. All were conducted in accordance with the ASTM specifications described.

One thing that most tests to date and reports written seem to verify is that slightly more concrete cover is usually required over prestressing steel than steel used in ordinary reinforced concrete to achieve the same fire resistance rating. This same collection of data substantiates that the cover requirements specified in the Tentative Recommendations for Prestressed Concrete by the Joint ACI-ASCE Committee 323 are conservative.

Recently Professors T. Y. Lin and G. E. Troxell completed a comprehensive report for the Illinois Prestressed Concrete Association entitled "The Fire Resistance of Prestressed Concrete." It includes detailed reports of tests conducted in the United States, England and Holland as well as accounts on six prestressed buildings which experienced actual fires. In prefacing this report Professors Lin and Troxell concluded that sufficient evidence is available from standard fire tests to demonstrate that properly designed assemblies of prestressed concrete members will adequately resist fires up to four hours in duration. They further concluded that the fire resistance of prestressed concrete is predictable and similar in nature to that of reinforced concrete. They therefore recommended that the same policy of fire rating reinforced concrete members be adopted for prestressed concrete members—that is—fire ratings established by specifying the concrete cover. □

This article is an abstract of a more detailed report on the problems of fire resistance of prestressed concrete which was originally published in PCItems, a regular publication of the Prestressed Concrete Institute. The original article summarized in tabular form several fire tests that have been made of prestressed concrete units and also described several actual fires which took place in structures built with prestressed units. The article appeared on page 2, Vol. 6 No. 8-9.

Recommended Concrete Cover For Steel Tendons

Fire Resistance Period (Hours)	Tentative Recommendations For Prestressed Concrete ACI-ASCE Jt. Comm. 323
	Inches
0.5	—
1.0	1.5
1.5	—
2.0	2.5
3.0	3.0
4.0	4.0

Prestressed Concrete in Chicago

— *an ASCE Committee Report*

■ The Task Committee on Prestressed Concrete of the Illinois Section of the American Society of Civil Engineers was proposed in July, 1960 because of temporary restrictions placed on the use of prestressed concrete in Chicago by the City of Chicago Building Department. The Committee was officially appointed by the organization's Board of Directors and all members of the Committee are registered structural engineers.

Charged with the investigation, evaluation and examination of the data available which would influence decisions to use prestressed concrete the committee investigated and studied the City Building Code, the results of fire of prestressed concrete tests, the results of actual fires, fire tests of other materials and a wealth of related data including the opinions of architects and insurance underwriters cognizant of the many problems involved.

Following its study and the drawing of several major conclusions, the committee reported to the Directors of the Illinois Section, ASCE, and included in its report the following recommendations:

After a review of significant data, this Committee is of the opinion that pretensioned prestressed *concrete structures can be designed to resist fires for up to four hours in accordance with present fire testing procedures.*

The Committee is further of the opinion that there is not enough test data available to formulate a recommendation for fire resistance of post-tensioned prestressed concrete.

It has been determined that the principal factor affecting resistance to fire is the amount of concrete cover protecting the steel strands or tendons employed as reinforcement. It has also been determined that another important factor is the cross sectional area of the member; the larger the area the greater its capacity for heat absorption and its fire resistance.

To meet heat transmission requirements it is recommended that the same total slab and topping thickness be used as for normal reinforced concrete.

The following minimum coverages of the prestressing steel are tentatively recommended for fire resistances from one to four hours.

Cover (in inches) for Various Fire Resistances

Type of Unit	Cross Sectional Area in²	1 hour Rating	2 hour Rating	3 hour Rating	4 hour Rating
Girders, Beams & Joists	30-150*	2″	—	—	—
Girders, Beams & Joists	150-300*	1½″	2½″**	—	—
Girders, Beams & Joists	over 300*	1½″	2″	3¼″**	4″**
Slabs, (Flush bottomed, Solid or Cored	—	1″	1½″	2″	—

*In computing the cross sectional area for joists the area of the flange shall be added to the area of the stem, and the total width of the flange, so used, shall not exceed three times the average width of the stem.

**Adequate provisions against spalling shall be provided by means of wire mesh.

These are recommendations based on test data. Modification of these covers should be made in accordance with results of ASTM E 119 tests for the particular section being tested.

Application of insulating materials can safely be used to add to any particular hourly fire rating the member itself may have, as permitted in other types of construction.

Chapters 65 and 69 of the Chicago Building Code should apply to prestressed concrete construction. Such compliance represents sufficient insurance for the safety and general welfare of the public.

In the concluding remarks of its report the committee also stated:

The present method of testing fire resistance of types of construction is based on the standard ASTM time-temperature curve, with the temperature rising for the full duration of the test. Except for special cases (like chemical plants) there is not enough combustible content in a building to sustain a fire rising in intensity for a number of hours, therefore the fire tests more logically should be based on the available heat input instead of the arbitrary time-temperature curve.

The Committee is of the opinion that, in light of the above, fire tests conducted in accordance with ASTM E 119 are conservative—particularly for construction with substantial mass and high specific heat such as concrete.

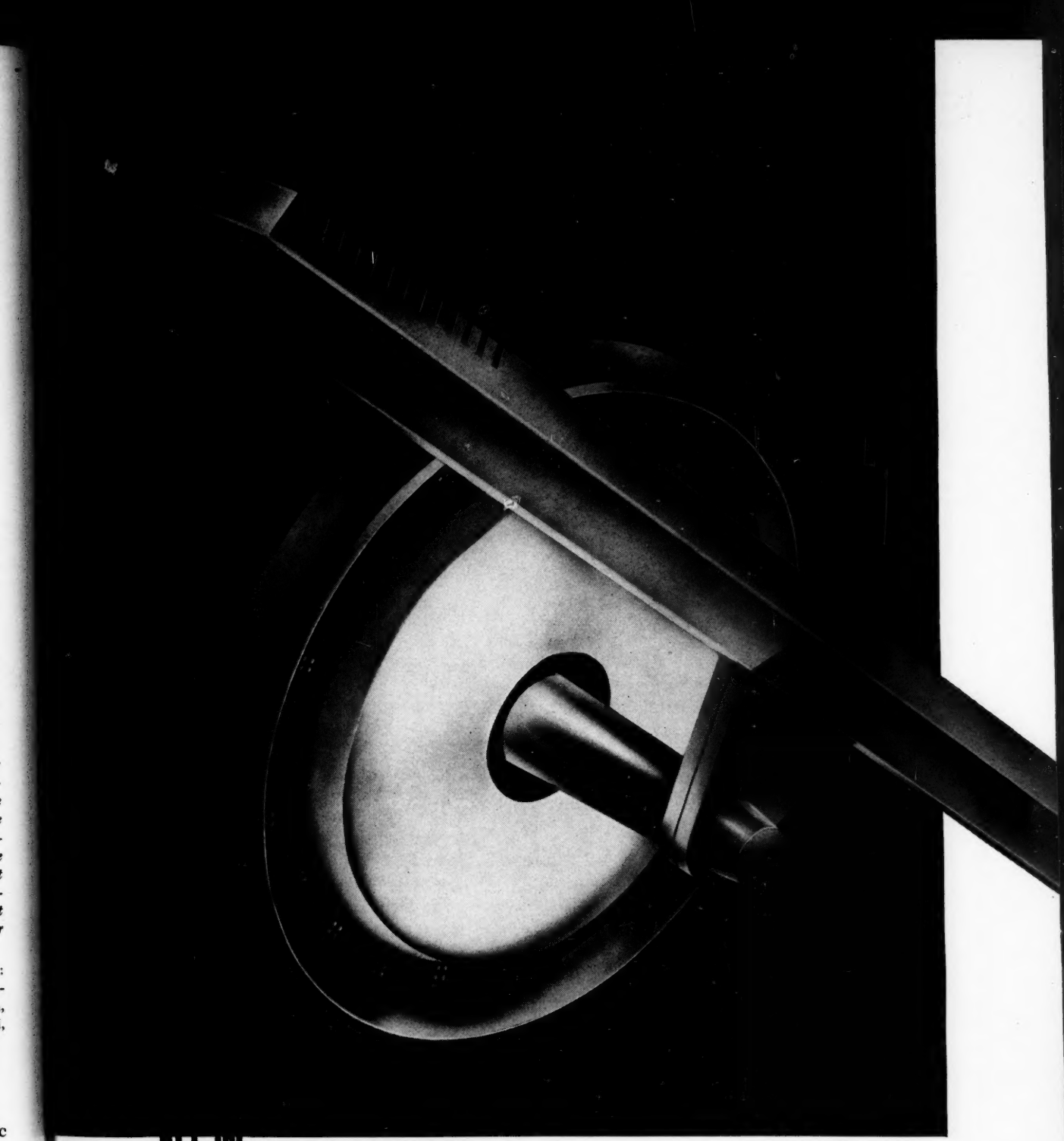
Present code and fire test procedures do not require methods of design, construction, nor test results which assure performance standards of a structure relative to deflection or continued ability to carry design loads in a post fire condition. Each structure in its post fire condition presents a unique problem for careful study by competent engineers prior to its certification for continued use.

Members of the committee are: Andrew J. Brown, Norman F. Brunkow, Edward S. Hoffman, Fred Klien, Kenneth C. Naslund, E. Alfred Picardi, and Arnold S. Rosner. □

Environmental Planning for the Elderly

"Environmental Planning for the Elderly" is the theme of the Eighth Planning Conference for Architects to be held at the University of Illinois, Urbana, Tuesday, Wednesday and Thursday, October 31 through November 2. Sponsored by the University's Department of Architecture and the Division of University Extension, the conference will cover "Social Relationships, Economic Status, and Health," on the opening day, "Community and Planning Facilities" on the second day and the third day will be devoted to the presentation of specific projects by architects.

Inquiries may be sent to the Department of Architecture or to Mrs. Helen Farlow, 208 Arcade Building, U of I, Urbana, Ill.



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Central Illinois Comment

a column about Central Illinois Chapter matters and members by Edward L. Verkler, AIA, Peoria.

This looks like an "odds and ends" month. After our quarterly meeting in September, I hope to have something to report on our new Fee Schedule. Which reminds me of the July issue of INLAND ARCHITECT, which carried an article about the new Iowa Chapter Fee Schedule. Fees are always important to Architects, and this one was quite timely. As I reported earlier, one big controversy among interested members of our Chapter, centered around the inclusion of information on architectural services received for the fee. I particularly noted the following quote by Mr. O'Neil and Mr. Savage: "We are proud to clearly outline the responsibilities of our service, and regard this portion of our brochure equally as important as the recommended minimum fee schedule outlined therein." I repeat this for the benefit of the 'doubters' within our ranks. The recommended minimum rates are similar to our proposed fees, except their group at 7½% is 8% in our schedule. The only apparent controversy in actual fees seems to fall in the residential class. Generally, the architects in our Chapter are receiving a minimum of 8% for this work (as listed in the 1951 publication), and several who do residential work felt the proposed 10% might be rather un-obtainable from clients. This is a difficult situation to ascertain. My own investigation of numerous chapter schedules has produced a spread from 8% to 10%, with most being on the high side. Iowa has pegged it at 10% and I hear tell, the west coast is in the 12% bracket. Many architects have no opinion because generally, they refuse residential work. As one of those 'odd balls' who like, and do considerable residential work, I think 10% should be a minimum—that is, if you like to make a profit! Another area of question is the sliding scale. Our committee has decided to stay away from it completely – primarily because of the many complications usually found in same. In the large city areas, this is undoubtedly quite important, in our area, probably not. I do like the simplified version found in the Iowa Chapter Schedule. If any reader is interested, dig the July issue out of that third pile on the left of your desk!

Two articles in the current issue of the Journal concerning Modular Measurements, remind me that I see very little of same in our area. Our firm uses modular dimensioning only in a limited way. It always sounds great when other architects write about the great simplicity in drafting and construction attrib-

1/2 or 3/4 inch

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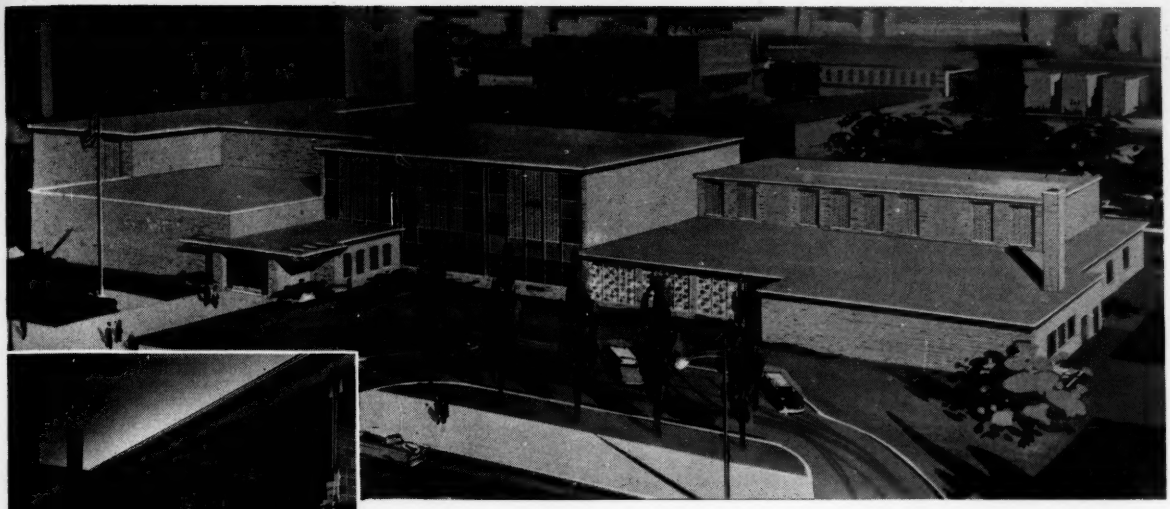

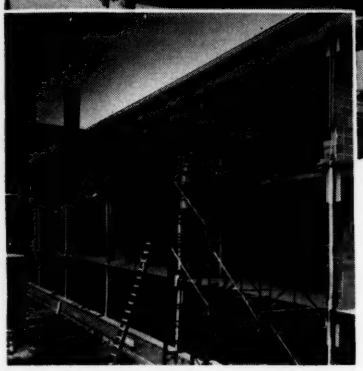

John B. Drake School, 2730 South Parkway, Chicago. Joseph C. Llewellyn Co., Architects, Coath and Goss, Inc. General Contractor. Floors and roof of Prestcrete prestressed units. Building contains three kindergartens, 29 classrooms, a 400-seat auditorium, gymnasium, and lunchroom. Photo shows Prestcrete units in place — Overhang is of Prestcrete's special precast units.

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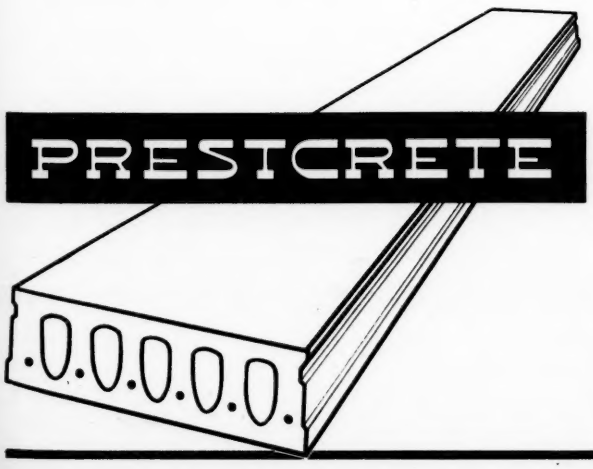

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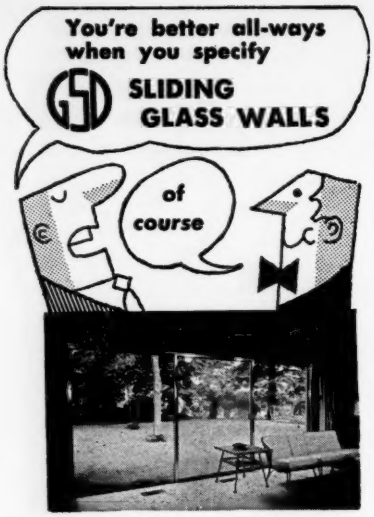

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uted to this system. Perhaps we are a little dense, but it doesn't seem to work that well. We have yet to figure out how to make a standard steel or aluminum sash fit modular dimensions on the jambs. If some kind soul has the answer, I would appreciate a note of enlightenment! A concerted effort within the Chapter might help. As an example, I noted in a recent publication of the Structural Clay Products Institute, the areas within the United States which produce brick in modular dimensions and those who do not. Naturally, we are right in the middle of the area which does not—except on special order! With the abundance of concrete block back-up walls (modular concrete blocks, of course) this always upsets the carefully laid plans of mice and men—and architects. I asked one of the local brick salesmen about this, and he said their company would rather produce modular brick but 75% of the architects specify standard size. Our office (and I suspect many others) specify Norman and Roman—(which are modular) or standard —which is not. When I specify standard, I am thinking of a regular old 8 inch long brick which I assume should be 7⅝ inches if the manufacturer is on the ball. Obviously, a misconception! Specification writers, please note! If you have made the same mistake, please include the word 'modular' or the length '7⅝ inches' in future documents. Together we might bring around the great shortening of bricks. And think of all the clay the brick boys will save. ⅜" x 2¼" x 3⅝" x millions of bricks might stave off the next price increase!

Specifications Institute at University of Wisconsin

Contract documents and specifications will be explored at a meeting offered by the University of Wisconsin Extension Division, October 19 and 20, 1961. Recognized authorities have been selected to explore all phases of contracts and specifications. A tuition fee of $25.00 will be charged. For further information contact Edward O. Busby, 3040 Stadium, The University of Wisconsin, Madison.

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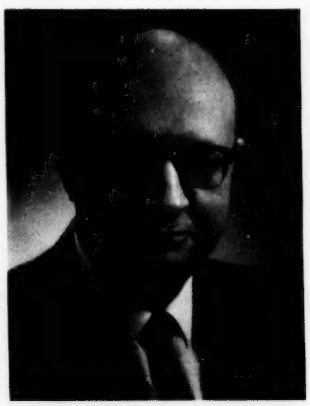

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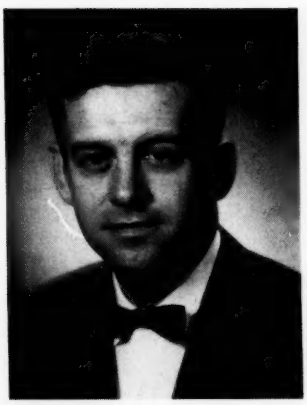
Manager



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Newly Elected Corporate Members

ROMAN FRANCZAK

Born: April 5, 1913, Poland. Education: Studied Engineering and surveying at the Technical College of Poland and architecture at the Liverpool University School of Architecture in England. Professional training: draftsman with Holabird, Root & Bourgee, Skidmore Owings & Merrill, Sidney Morris & Associates, and at present draftsman with Loebl, Schlossman & Bennett. Licensed to practice in Illinois.

TEVIS C. FREEMAN

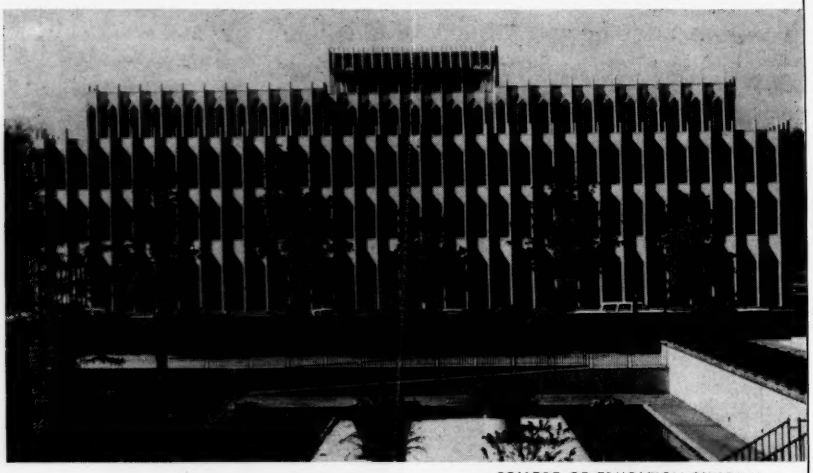
Born: January 22, 1931. Education: Bachelor of Architectural Engineering, University of Illinois. Professional training: draftsman, De Leuw - Cather, Skidmore Owings & Merrill and Yerkes & Grunsfeld. Associate architect with Norman E. Keller. At present he heads his own firm in Rock Island. He has travelled widely in Europe. He won the Allerton American Travelling Scholarship, elected to Tau Beta Pi and the Gargoyle Society.

F. PHILLIP BROTHERTON

Born: May 11, 1921, Altrincham, Cheshire, England. Education: Bachelor of Architecture, University of Liverpool, Master of Civic Design, University of Liverpool and Master of Architecture, University of Illinois. Professional training: draftsman and principal for Matley, Brotherton, Mills; Senior Planner, Lancashire County Planning Office, England; and at present is a partner at Perkins & Will. He has traveled widely in Europe and in South America. He is a member of the Royal Institute of British Architects and is licensed to practice in Illinois and Great Britain.

ARTHUR PHILLIP SALK

Born: October 14, 1925, Chicago, Illinois. Education: Bachelor of Architecture, University of Illinois. Professional training: draftsman, Holabird, Root & Burgee, job captain, Perkins & Will and presently a partner at Shayman & Salk in Chicago. He is licensed to practice in Illinois.



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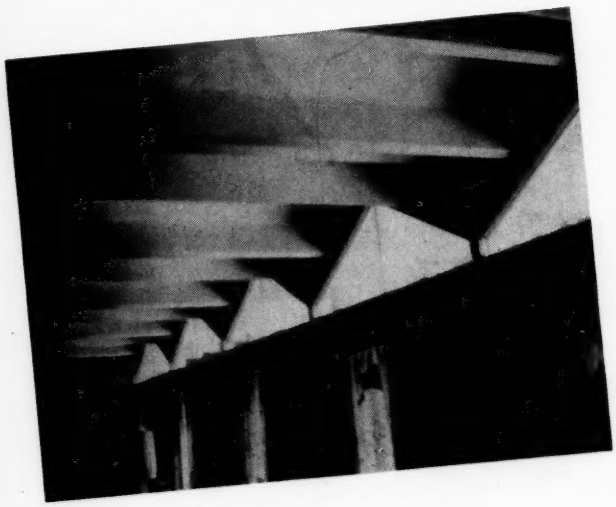

The exposed interior of roof sections required only paint treatment for finished appearance.

FOLDED PLATE EFFECT PRODUCED BY PRESTRESSED CONCRETE ROOF

In construction of the Women's Residence Hall, Quincy College, Quincy, Ill., Frank Horn and Associates, local architects, blazed new trails in roof design with prestressed concrete double-T sections supported by steel frames, giving the effect of a folded plate roof.

Dormitory buildings joining each end of the folded plate section contain three floors of double-T prestressed construction. Contractor on the job was Holthaus Bros., Quincy.

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HARRY PAINE SHAXTED

Born: October 6, 1927, Chicago, Illinois. Education: B. S. Production Design from the Illinois Institute of Technology. Professional training: draftsman, District Public Works Office, draftsman and designer, Skidmore, Owings & Merrill and architect and design engineer with Kaiser Aluminum. At present he heads his own firm in Winnetka. He is licensed to practice in Illinois.

MILTON MAYER SCHWARTZ

Born: June 6, 1924, Chicago, Illinois. Education: BSCE, Illinois Institute of Technology and Graduate Work at the Institute of Design. Professional training: design engineer, Barnes & Reineke; architectural draftsman, F. W. Schurecht; designer, National store planning and research department, Sears, Roebuck & Company, and at the present time has his own firm in Barrington, Illinois. Licensed to practice in Illinois.

KYLE GRANT BENKERT

Born: June 17, 1931, Chicago, Illinois. Education: Attended Amherst College, Princeton University; holds three degrees in Architecture and Master of City Planning. Professional training: draftsman, Ernst A. Benkert; draftsman-supervisor, Graham, Anderson, Probst & White; draftsman, Thomas H. Moran, and draftsman-supervisor with Charles K. Agle. At the present time heads his own firm in Winnetka, Illinois. Licensed to practice in Illinois.

MYRON GOLDSMITH

Born: September 15, 1918, Chicago, Illinois. Education: BS and MS in Architecture from the Illinois Institute of Technology and attended the University of Rome. Professional Training: draftsman, W. E. Deknatel; architect, Harwood Nebel Construction; architect, Virginia Engineering Company; architect, L. Mies van der Rohe. At the present time is architect and structural engineer with Skidmore, Owings & Merrill. Won the IIT Freshman Competitive Scholarship, Bartlett Scholarship and Graduate Scholarship. He won the Fullbright Grant in 1953, with renewal in 1954. He is a member of the National Council of Architectural Registration Boards.

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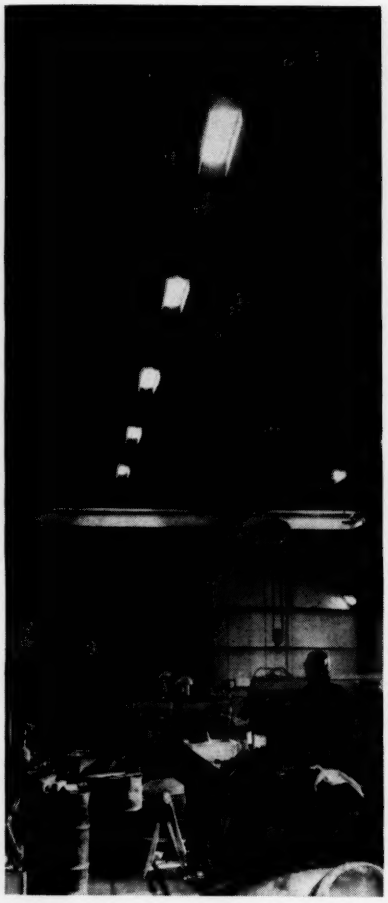
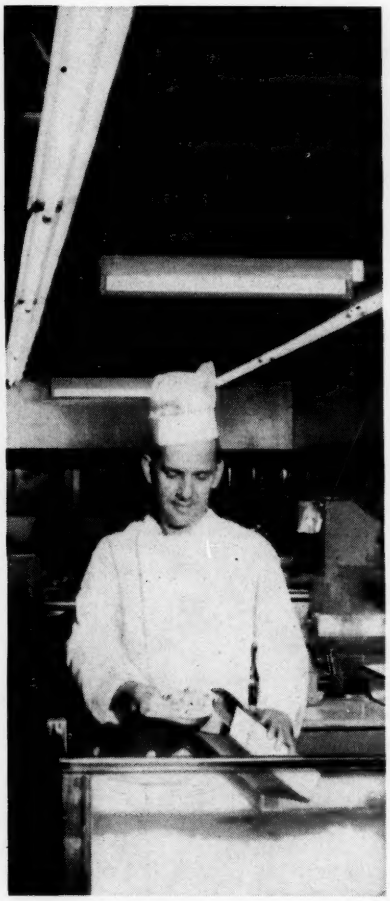
new quartz lamps deliver instant warmth wherever it's needed

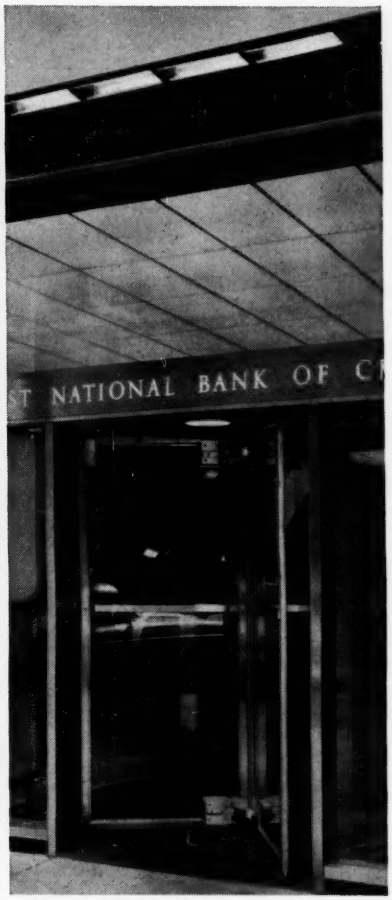
Three typical applications that demonstrate how amazing quartz lamps are being used to solve unusual heating problems



Machine shop. Overhead quartz lamps keep workers warm and comfortable—even when the large door is left wide open.



Commercial kitchen. No waiting on a furnace or a boiler. Ceiling quartz lamps beam down heat at the flick of a switch.



Bank entrance. Radiant Heat beams warm welcome to customers; also keeps entrance free of snow and slippery ice.

Quartz lamp heating requires no furnace, ducts or pipes—and no more maintenance than an electric light bulb. It's ideal for spot comfort heating in large buildings (warehouses, garages, maintenance shops); where areas are semi-exposed (service stations, store entrances); where areas are used periodically (gymnasiums, ticket booths). For complete information on quartz lamp heating applications, call your Commonwealth Edison or Public Service Company representative.

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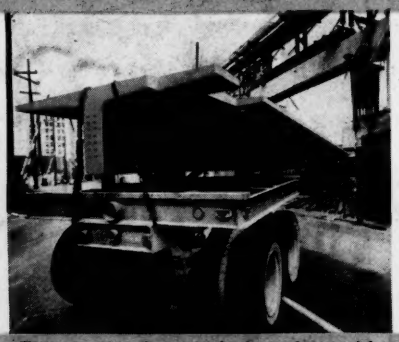
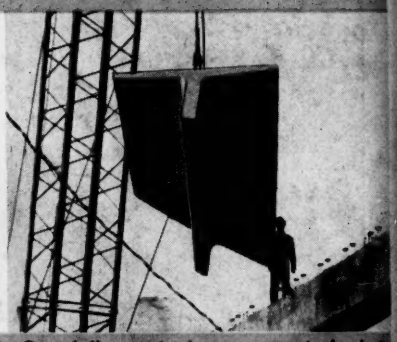


This is the beam that makes wide spans possible.



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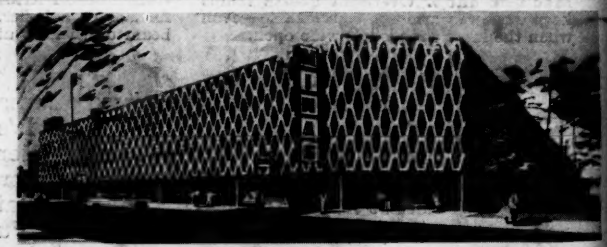
Engineers: De Leuw, Cather & Co., Chicago, Ill.



MS-614

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